The Impact of Immigration on Residential Segregation Revisited

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Abstract

We investigate the impact of immigration on ethnic residential segregation for US metropolitan areas 1990-2000. In doing so we hope to shed light on the way in which contemporary immigration has altered the spatial proximity. We augment conventional studies of segregation by simultaneously analyzing segregation statistics for 6 ethnic pairings available from complete count 1990 and 2000 US census data. We test the competing hypotheses of polarization and diffusion under a first-difference model. Our multivariate results indicate that segregation is positively associated with metropolitan area size and negatively associated with recent growth in the housing stock. We also find that the effect of immigration on segregation is modest, albeit positive, in most cases. Immigration has no impact on White-Black segregation. It is selectively significant for other ethnic pairings and the effect attenuates with metropolitan area size. While not demonstrating diffusion, neither do our findings lend much support for the polarization hypothesis. There is little in these results that suggests concern in the policy realm arising from increased immigration to the United States.

Introduction

Studies of race relations in the United States have largely focused on levels of prejudice, discrimination, economic inequality and segregation between Blacks and Whites. Scholars have focused on residential segregation between the two groups for several decades. Overall, studies illustrate declines in Black/White residential segregation from the 1960s onward (Farley and Frey, 1994; Krivo and Kaufman, 1999; Massey and Denton, 1993; Massey and Gross, 1991). While this large body of work has provided valuable insights into the nature of social inequality between Blacks and Whites, we have much less information on how newer ethnic groups fit into the system of racial hierarchy in America today.

It is no longer newsworthy that the United States has become an increasingly multiracial society, a result of the diversification of national origins enabled by the 1965 Immigration Act (Yang, 1995) coupled with a related surge in the overall flow of immigrants. Indeed the 1990s was the decade of highest immigration (in raw numbers) since the 1910s (INS Statistical Yearbook, 1998). Such demographic developments make a compelling case for including Asians and Latinos in a more broad-based and systematic study of race and ethnic residential pattern. Studies examining both immigration *and* race, are growing in number (Goldscheider, 1995; Bean & Bell-Rose, 1999; Jaynes, 2000), yet there remains a need to actually link the two phenomena. Our previous work (White & Glick, 1999) did explore the effect of immigration on 1990 White/Black residential segregation. However, the increasingly multiracial composition of the US population leads us to now turn to an examination of the impact of immigration in 2000 on residential segregation across multiple groups, moving beyond the "Black and White" dichotomy to compare Black-Latino, Black-Asian, White-Latino, White-Asian and Latino-Asian segregation. (We will describe non-Hispanic Whites, also termed Anglos, as Whites; we will

describe non-Hispanic Blacks as Blacks.) These are the major pairings that are identifiable with decennial census data.

In this paper, we begin by briefly discussing some previous research, with attention to the way in way immigration may further distance ethnic groups from one another in various spatial and socioeconomic settings. We then introduce the competing mechanisms of polarization and diffusion, which may drive the phenomena we observe. We offer some observations on public policy and a snapshot of recent patters of immigration and residential distribution in the United States. We then describe our data and methods we use to test for the relationship between immigration and segregation. Our section on findings discusses first cross-sectional results for 2000 and then more robust first difference model. The paper ends with interpretation of these results and some overall conclusions.

Previous Research

To date there has been little examination of the effect of immigration on residential segregation across multiple racial/ethnic groups. Traditional models of residential segregation and immigration may not apply to current patterns, given the dramatic changes in the composition of both the native and foreign-born population in the last half of the twentieth century. Classical ecological theory suggests a standard spatial assimilation model. In this model immigrant minorities move out of urban ethnic enclaves into integrated areas with the majority population as their exposure to the United States increases, their socioeconomic status rises, and linguistic adaptation occurs. In the standard model, new immigrants then arrive to take over the inner city and enclave locations. Under this model, English proficiency and length of residence in the United States are expected to be the key determinants of immigrant residential

concentration. However, recent studies suggest this classic spatial assimilation model works best when examining immigration in the early 20th century. Racial diversity clearly complicates the progress of the assimilation process (both spatial and social) across ethnic and immigrant groups. Some might argue that the spatial assimilation of today's immigrants appears to be more determined by race and socioeconomic status than by duration in the United States or linguistic adaptation (Alba et al., 1999).

New findings on spatial assimilation suggest that the diversity of contemporary immigration may translate into greater ethnic diffusion. By contrast, some of the literature focusing on the economic impact of immigrants on native populations presents a slightly different picture. Frey and Liaw (1998) suggest "immigrant receiving cities" (i.e. Los Angeles) have dual labor markets with college-educated natives on the one end and low-skilled immigrants on the other. The authors further hypothesize that new immigration patterns (i.e. increased diversity of origins and lower SES through family reunification vs. skill based entrance) increase the clustering of new immigrants while dispersing longer-term residents who follow job opportunities to other metropolitan areas. This is consistent with the spatial assimilation model. However, as new immigrants follow family members or community members, via chain migration, to cluster in a handful of large metropolitan areas and natives leave to pursue opportunities in other metropolitan areas, ethnic heterogeneity may actually be reduced. In this case current patterns of internal migration do not increase contact among groups because as new immigrants arrive in traditional receiving areas and natives move to new areas of growth, "domestic balkanization" occurs (Frey, 1996). Under this scenario, older inner city areas are left to new arrivals while new growth areas, cities in the West, for example, attract domestic migrants, mainly Whites. To the extent that this process does operate, and to the extent

that US-born Whites depart immigrant receiving neighborhoods (and those nearby), greater ethnic segregation may result.

The idea that areas of the United States become more "Balkanized" arises from the economic competition model in which natives leave labor markets with higher levels of economic competition from new arrivals. Frey (1996) speculates that Blacks are more likely than Whites to be displaced by and in direct competition with new immigrants. But little support has been found for the claim that increased minority immigration increases joblessness among native workers or that Blacks are especially disadvantaged in areas of high immigration (Wilson and Jaynes, 2000). Analysis of several waves of Current Population Survey data for the 1980s indicated that states with high level of recent immigration were less likely to retain native Anglo workers (especially those with lower skills) or receive such in-migrants from other states, although this effect was tempered by the existing concentration of long-term immigrants (White & Liang, 1998). New analysis by Gurak and Kritz (2000), using different data and methods, find much the opposite, suggesting that recent immigration does not "drive" Whites out of particular locations. Nonetheless, internal migration is lower for foreign-born individuals than natives, suggesting that unless longer resident Asians and Latinos move to areas of lower immigrant concentration, Latino and Asian residential separation from Whites could continue (Funkhouser, 2000; Kritz and Nogle, 1994).

Competing Mechanisms: Polarization vs. Diffusion

Based on these recent studies, we propose two competing models of residential segregation that may result from an influx of immigrants: the *polarization model* and the *diffusion model*. The polarization model argues that as immigration of diverse groups increases,

Whites and non-Whites will only further separate from one another, using immigrants as a buffer between them. The mechanism may be voluntary housing choice or discriminatory practices (or a mixture of both), but the picture continues to be one of racial hierarchy, with Whites and Blacks as the two extremes with other groups filling in the middle. If the (non-Anglo non-Black) foreign-born act as a buffer between Blacks and Whites, segregation between these two groups would increase with immigration. Some immigrants may live closer to Blacks while others have an easier time moving into areas with non-Hispanic Whites. Overall, however, the net effect would be to further separate Whites from Blacks.

Recent scholarship suggests that domestic internal migration and immigration/settlement patterns may affect one another. As new arrivals enter, Blacks and Whites may move literally further apart, thereby leading to demographic balkanization (Frey, 1996). How this may affect other ethnic groups may depend on their current status. In other words, the degree to which other ethnic groups, made up of a greater proportion of recent immigrants, are able to move closer to Blacks or Whites may depend on the immigrants' own ranking on the ethnic hierarchy in the United States. This is closer to expectations of the segmented assimilation hypothesis where the color line in the United States remains firm and immigrants are assigned to one side of the line or the other. Differences in race, human capital, accessibility of government resources (i.e. refugee resettlement assistance) and the presence of an already established immigrant community may all influence the degree to which new immigrants settle in communities that are more proximate to those occupied by Blacks or by Whites (Newbold, 1999).

The experience of West Indian immigrants supports this expectation of selective polarization such that new West Indian arrivals find themselves living in closer proximity to Blacks than Whites regardless of their own residential preferences and human capital (Waters,

1999). In another example, Krivo and Kaufman (1999) investigate residential segregation in a multi-ethnic context. They conclude that the presence of groups that are non-White and non-Black increases Black/White segregation because Whites seek to reduce the number of all non-Whites in their neighborhoods. Although they do not specifically address immigration, the findings of Krivo and Kaufman (1999) support the expectations of the polarization model in the sense that Whites continue to maintain a low tolerance for non-Whites in general. The increase in immigration from Asia and Latin America may increase the separation of Whites and Blacks overall if Whites are able to maintain even moderate levels of contact spread across all non-White groups. If the polarization model holds, we would expect segregation between Blacks and Whites to increase, as new immigrants join their respective ethnic communities or are simply channeled away from Whites. In the most complete manifestation of polarization, one would expect all pairwise segregation (White-Black; White-Latino; Black-Asian, etc) to increase. In this way, racial/ethnic separation is maintained despite the increase of Asians and Latinos in the population.

The diffusion model offers a sharply contrasting dynamic to the polarization model. In contrast to a trajectory of increasing segregation of Whites from other groups, the diffusion model predicts that new arrivals "stir the melting pot," in effect breaking down the "color-line". The diversity of origins of today's immigrants may render past patterns of racial segregation obsolete. In this case, distinctive new groups mix the residential patterns of older groups in the United States creating more diverse neighborhoods and regions. Under this scenario, the firm racial hierarchy is too blurred to maintain past levels of segregation. New arrivals from all over the globe change the historical two-group model of race relations in the United States. Thus, the diffusion model suggests that new immigration, particularly with the diversity of origins

represented in the past few decades, creates new opportunities for contact across racial lines. Our previous work found that an increase in foreign-born residents in a metropolitan area between 1980 and 1990 worked to reduce residential segregation of Blacks from Whites, supporting this diffusion model (White and Glick, 1999). An extension of this work could demonstrate that immigration leads to increased propinquity among all ethnic and racial groups in the United States. Residential segregation between multiple pairings of groups could be reduced as long-term residents move towards more multi-ethnic communities as new arrivals take over historically immigrant communities.

One innovation of the present study is to move beyond simply looking at Black-White segregation. This is important because another possibility presented by the diffusion model and supported by the segmented assimilation perspective is that of increased diffusion among some groups, but stable segregation levels between Blacks and Whites. For example, new arrivals from Asia and Latin America may create an opportunity for greater contact between Asians and Whites or Asians and Latinos while Whites and Blacks remain separate. The "suburbanization" of recent immigrants increased between 1980 and 1990. Some of these suburbs may recreate ethnic enclaves as new arrivals join longer-term residents via chain migration It has been suggested that the suburbanization of some of these recent immigrant groups is tied to their higher socioeconomic status (Alba et al, 1999). Thus, it is likely that structural assimilation of some groups (i.e. Asians) allows for greater contact with non-Hispanic Whites even though contact between other minorities and Whites may not increase considerably. We could see polarization continue between Whites and Blacks while the diffusion model holds for other groups. This study is the first of which we know to test the effect of immigration on residential segregation across several ethnic groups. In addition, we are able to present changes in

segregation between 1990 and 2000 updating much of the previous work focused on the 1980-1990 period.

One final alteration of our earlier work is noteworthy. In the present analysis we take size of metropolitan area into account when examining the effect of the size of the foreign born population on changes in residential segregation. Based on the findings of Krivo and Kaufman (1999) for White-Black segregation, larger metropolitan areas with larger populations of minorities are less likely to see large declines in segregation than smaller areas with fewer minority group members. Larger metropolitan areas are more likely than smaller areas to contain greater numbers of minorities and immigrants from the same ethnic group increasing the potential for members of the same ethnic group to live near one another. Thus, an increase in the foreign-born population is also likely to maintain segregation levels or see them increase in these large metropolitan areas.

Public Policy

Residential segregation is not only theoretically important but carries important implications for public policy. Certainly a primary focus of civil rights policy has been to end housing discrimination. Even without overt discrimination, Blacks and minority-group immigrants are more likely to experience concentrated poverty, more limited job opportunities, and higher rates of crime than are their White counterparts, limiting opportunities for future socioeconomic advancement. There is a counter argument, of course, which views segregation – absent discrimination – more benignly or even as beneficial. In this view ethnic enclaves may actually present economic opportunities and thus offer an advantage via residential separation from other groups. Examining residential segregation may offer a picture of the way housing policy, immigration patterns and intergroup relations manifest themselves in our urban centers

(White & Omar, 1997). Through an investigation of the distribution of groups in our increasingly ethnically diverse society, we gain insight into whether our relatively open immigration policy of the past several decades also generates a need for policy aimed at more evenly distributing the economic benefits and costs of immigration throughout society (Bean & Bell-Rose, 1999, p.2).

A Snapshot of Immigration and Residential Patterns 1990-2000

International migration has been on the rise in recent years. From 1991 through 2000, over 9 million immigrants entered the United States (Immigration and Naturalization Service, 2000). This figure surpasses the number of migrants who entered the United States from 1901 through 1910, the period of time previously cited as the apex of U.S. immigration (INS, 2000). Though the absolute size of today's immigrant flows are comparable to those of the past, the composition is very different. In the post-1965 immigration period, migration streams have been dominated by Asian and Latino immigrants, rather than Europeans. Of the 9.1 million documented immigrants who entered the United States from 1991 through 2000, 2.8 million or 31% arrived from Asia. An even greater percentage hailed from Latin America (INS, 2000).

Other demographic changes are also underway, altering the racial and ethnic landscape of the United States. Latinos are the fastest growing ethnic group in the United States, due to both high immigration rates (cited above) and high fertility rates. Over the last ten years alone, the Latino population has increased from 22.4 million to 35.3 (Logan, 2001). The result is a rapidly changing U.S. population.

Among Blacks and Whites, segregation has been very high for much of the twentieth century (Massey & Denton, 1993). Throughout the 1970s, indices of Black-White dissimilarity

ranged between 60 and 90, with the average SMSA[1] having a dissimilarity index of 69.5 (Darden, 1995). Studies of White-Black segregation suggest that modest, but consistent, declines in segregation have taken place in the majority of metropolitan areas, with such declines starting in the 1970s and continuing through today (Farley & Frey, 1994; Krivo & Kaufman, 1999; Darden, 1995). The long history of Black-White segregation analysis has generally found that segregation indices tend to be higher in larger cities and those with larger Black populations.

Declines in White-Black segregation have been particularly pronounced in cities with modest Black populations. Metro areas with larger minority populations tend to have higher levels of segregation. In cities with small minority populations, a modest shift in the Black population (across a small number of neighborhoods) can result in quite clear drops in any segregation statistic; perhaps thus, desegregation can proceed without much awareness among Blacks and Whites (Krivo & Kaufman, 1999; Logan, 2001). Still, such a decline in segregation is genuine, in that preferable conventional segregation statistics can control – at least in their calculation – for metropolitan area size and overall population composition.

Others have found that newer cities, particularly southern and western "sunbelt" cities tend to have lower levels of Black-White segregation. In contrast, traditional "rust-belt" cities have maintained higher levels of segregation. Metropolitan areas with large amounts of new housing construction, a measurement of an area's growth and correlated with its "sunbelt/rustbelt" status, also leads to declines in Black-White segregation (Farley & Frey, 1994).

The presence of other ethnic or racial groups may also affect White-Black segregation, but how it affects such segregation is the ongoing question. Previous work has found that the

[1] Though this paper examines MSAs and PMSAs, rather than SMSAs, the segregation trends between Blacks and Whites are similar.

presence of immigrants actually decreases the amount of White-Black segregation (White & Glick, 1999). Others (Krivo & Kaufman, 1999) argue "a relatively large presence of other racial and ethnic groups places substantial additional constraints on the potential for Black-White desegregation." Though Black-White segregation has consistently been in decline over the past thirty years, the mechanisms at work are not completely clear. Moreover, the role (and impact) of immigration and resulting ethnic diversification has yet to be understood.

Segregation between Latinos and Whites has been stable between 1980 and 2000. Latino-White segregation was recorded at 50.6 in 1990 and 51.5 in 2000 (Logan, 2002). Two counterbalancing trends have resulted in this virtually unchanged segregation statistic. Since 1980, Latinos have tended to move away from more segregated areas to less segregated areas. At the same time, areas with increasing Latino populations, due to immigration, fertility, or both, saw increases in segregation. As a minority population in an area increases, so too do levels of segregation.

Whites and Asians have consistently had lower rates of segregation than have Whites and Latinos. White-Asian segregation measures are in the low 40s, and they also have been been quite stable since 1980. Like the constancy of White-Latino segregation, White-Asian segregation is thought to have remained steady due to the same two contradictory trends: movement away from segregated metropolitan areas, but increased segregation for those living in areas with large Asian populations (Logan, 2001).

Data and Methods

Our sample consists of 310 metropolitan areas in the United States for which segregation statistics could be calculated for both 1990 and 2000, and 331 metropolitan areas for the models

relying exclusively on 2000 Census data. There exists a range of possible statistical definitions for urban regions. We use MSAs, and in large conurbations, PMSAs, the constituent parts of Consolidated Metropolitan Statistical Areas (CMSAs). These metropolitan definitions – MSA and PMSA – delineate integrated housing and labor markets, appropriate for the study of segregation.

To measure segregation levels, we employ the Index of Dissimilarity, *D*. This measure of segregation is widely employed. Despite some technical weaknesses, *D* is an acceptable measure of "evenness" (White, 1986; Massey, White & Phua, 1996). (It is also the measure of evenness available on the Mumford Center website, which also uses the same metropolitan geography as we do.) As is well known, the dissimilarity statistic has the convenient intuitive interpretation of indicating the fraction of one group that would have to relocate (here, to new neighborhoods) to produce an even, or unsegregated distribution. While many other indices have been developed, and some may be superior (White 1986), the dissimilarity index seems to remain resilient as a first-pass measure of segregation as it is widely used among social scientists and is understood even outside the academic circles. The dissimilarity statistics are calculated from census tract information in SF1A for 2000 and STF1A for 1990. Tracts are designed to be relatively homogenous units with about 4,000 to 5,000 residents, and probably remain the best statistical approximation to neighborhoods (White 1986).

Our objective here is to simultaneously analyze the segregation across several groups. Early census tabulations – SF1 files from the 100% count data – identify race and Spanish Origin. This set of categories gives rise to four major ethnic classifications: (1) Non-Hispanic Whites (here referred to as Whites or Anglos); (2) Non-Hispanic Blacks (here referred to as Blacks); (3) Spanish Origin (here referred to as Latino); (4) Asians. We note that each of these

groups is itself an amalgamation of ethnicities; further work with more detailed census tabulations can begin to sort out the structure of residential patterns within and between these several larger groups. We also exclude those not classified into one of the four categories.

The dependent variable is the level of segregation that characterizes the pair of ethnic groups. The four major groups above generate six unique dissimilarity pairings: White-Black, White-Latino; White-Asian; Black-Latino; Black-Asian; Latino-Asian. The index of dissimilarity can be calculated only for segregation between two groups at a time. The data on which we draw (Mumford Center) contains these six values for each of the metro areas in our analysis.

We employ a "replicate" model, i.e. each metropolitan area appears 6 times in the datafile, once for each dissimilarity pairing. We also include a set of dummy variables that refers to the ethnic group associated with the index in specific observations. Controlling for other factors, the dummy variables can be interpreted as the differential segregation level for the ethnic pairing, net of other traits included in the model. Values for the metropolitan level covariates are duplicated for each of the six records within the metropolitan area. Pooled models use White-Black dissimilarity as the reference category. Some analyses split the data and examine each pairwise dissimilarity value as a separate outcome.

Among our covariates we include population size, region (dummy) and MSA "cohort," to capture ecological and historical aspects of metropolitan development. "Cohort" we define to be the census decade in which the central city (cities) of the metropolitan area crosses the 50,000-person threshold. For some major metropolitan areas, this occurred in the 19th century; for other metropolitan areas it is much more recent. (Due to a move to less stringent metropolitan area definitions, some MSAs have yet to cross the threshold.)

We include the percent of housing that has been constructed within the past decade. Beyond population growth itself, which is already included, this covariate is designed to capture the degree to which new residential areas, not yet settled or identified with a particular ethnic group, are available for occupancy. In general, a more dynamic housing market makes for more opportunity for integration, as both new and long-term urban residents are less beholden to residential patterns of the past.

We include three measures of the overall MSA ethnic composition: percent Black, percent Latino, and percent Asian. These measures tap the ethnic structure of the metropolitan area. They allow us to examine whether ethnic composition effects – found in other studies, especially for Black-White segregation—continue to hold. Note that in our pooled models, these three covariates are included in the replicate data along with the pairwise dissimilarity dummy variables, and thus they are allowed to influence level of segregation across groups as well as within specific pairs.

Our competing models – diffusion vs. polarization – are examined with a measure of immigration. We include in our analysis the fraction of the metropolitan population that is foreign born. To recap, the polarization model predicts that as the foreign born fraction increases, i.e. as the impact of immigration grows, segregation (across some or all of the dissimilarity pairwise measures) should grow. By contrast, the diffusion model predicts that as the immigrant fraction of the metropolitan population increases, segregation will decrease.

Our model specification takes a standard regression approach with two important additions. First we analyze both pooled and split models. Pooled models include the 6 pairwise values for the metropolitan areas, with replicated metropolitan information. We also analyze split models – one regression per segregation pairing – and provide a formal test for the null

hypothesis of equivalence of group-specific coefficients. Our pooled model includes dummy variables for each of the segregation pairs (vs. Black-White as reference) so that differentials in ethnic segregation can be seen, as well as the influence of the substantive covariates themselves.

We also have estimated both cross-sectional and first difference models. Cross sectional (single census) models have been the most common approach to analyzing the determinants (or predictors) of segregation levels in a multivariate analysis. The cross-sectional approach does have a limitation, however. Unmeasured traits that influence segregation could bias the value of other covariates. A first-difference model addresses this problem, by removing the effect of fixed, unmeasured traits. In the first difference model, the *change* in segregation (D for 2000 minus *D* for 1990) is regression on the *change* in each covariate. (Fixed covariates do not appear; they essentially subtract out of the model.) Since immigration is so dynamic a process and so clearly related to the process of ethnic residential sorting, we feel the first difference model is to be favored for making inferences about the influence of immigration on segregation. Cross-sectional models can still be helpful in pointing to characteristics associated with higher or lower values of segregation at the current point in time.

Findings

Scholars have not come to a definitive conclusion about the effect of immigration on racial and ethnic segregation. As discussed previously, some argue that an influx of immigrants helps to "stir the melting pot," while others see such flows as further separating different racial and ethnic groups. We employ two types of analyses (cross-sectional and first-difference) to examine whether increased immigration does indeed encourage the residential mixing of different racial and ethnic groups, whether higher rates of foreign born increase segregation, or whether the influx of foreign born into a city simply has no discernable effect on segregation.

[TABLE 1 HERE]

Because our primary interest is examining what effect immigration has on residential segregation, both in the year 2000 and over time, we present some background on the presence of the foreign-born across US metropolitan areas. Table 1 lists the top ten metropolitan areas, in terms of the immigrant population. As one can see, the foreign-born increased in the 1990s in all of these metropolitan areas. For example, San Francisco was the metropolitan area with the fourth highest foreign-born fraction in 1990 at 27.5%. This level would not have made the top ten in 2000. By 2000, San Francisco had increased to 32%, although the city had dropped to sixth in the rankings. Miami continued to lead US metropolitan areas in immigrant concentration for both decades, and by 2000 over half the residents of the Miami metropolitan area were born outside of the United States. The impact of such increasing shares of immigrants within metropolitan areas is what we will examine in our multivariate work.

[TABLE 2 HERE]

Table 2 presents the summary statistics of the variables used in both the cross-sectional and first-difference models. On average, MSAs have grown about 13% in terms of population from 1990 to 2000. Table 2 also shows that the fraction of new housing in these regions crept up from five to nearly eighteen percent over the decade, reflecting this population growth and also economic growth that was investing in new housing stock itself.

Table 2 also shows that metropolitan areas have become more diverse between 1990 and 2000, with greater numbers of Blacks, Asians, Latinos, and foreign-born on average. Notable for our purposes is that the mean immigrant percentage across metropolitan areas was 5.36% in 1990, and this increased to 7.38% in 2000. These immigrant concentrations are smaller than the US population-wide averages for each decade (7.9 and 10.4 respectively USBC 2000 CPR-P23-

206) because we are averaging over metropolitan areas. These MSA percentages do bring to light, however, the demographic reality that the increasing presence of immigrants in the US population was not just limited to a few large urban areas.

Of particular interest is the net shift in segregation over the decade. White-Black, White-Asian, Black-Latino, and Black-Asian dissimilarity indices all declined at least a few points during the 1990s. Latino-Asian dissimilarity (admittedly two sparse groups in some of these metropolitan areas) has made a slight decline, remaining close to unchanged. The one increase is in White-Latino dissimilarity, increasing by over two points, from 36.1 to 38.6. Such descriptive results help motivate the questions we ask: Is there a relationship between this increasing urban diversity and a general trend toward decreasing ethnic segregation? Does the growth of the foreign-born population have different effects across ethnic groups?

To test what type of effect the presence of foreign-born has on dissimilarity, we begin by conducting a cross-sectional analysis to predict rates of dissimilarity in the year 2000. Extending previous research, we predict all six different types of dissimilarity described above (White-Black, White-Latino, White-Asian, Black-Latino, Black-Asian, and Latino-Asian), rather than simply White-Black. As a result, the pooled model that includes 6 types of dissimilarity for each of the 331 MSAs contains 1986 observations. We include pair-wise dummies. In addition to including racial, ethnic, and nativity composition of each MSA, we also include the other control variables -- region, age of the city, population growth, and housing growth – described earlier and found in previous studies to affect segregation (Farley & Frey, 1994; Frey & Farley, 1996; White & Glick, 1999).

[TABLE 3 HERE]

The results from our cross-sectional analysis are found in Table 3. We first take results for the pooled model, in which all 6 segregation pairs (and associated dummy controls) are included. We then turn to a more selective discussion for the individual segregation outcomes. In keeping with previous studies, we find that larger MSAs exhibit greater levels of segregation. What is new here, though, is that our results show this to be a general feature of all ethnic segregation pairings, i.e. the size effect is statistically significant and substantively important in the pooled model and in all of the individual models.

At the same time, metropolitan areas that have greater levels of new home growth, i.e. recently expanding cities, show *lower* levels of segregation. For Black-White segregation, this effect is such that a city with 10 percentage points more recent housing stock would be expected to have a Black-White dissimilarity about 5 points lower that an otherwise comparable city. Black-Latino and Black-Asian segregation levels are similarly influenced by housing growth.

The age of a metropolitan area has varying effects on segregation level. The general trend seems to be that metropolitan areas in the 1950 through 1980 cohorts (reaching metropolitan classification size in those census decades) have somewhat lower levels of segregation than older metropolitan areas and those that are of more recent vintage. These cohort effects are not particularly consistent across the six ethnic-specific analyses.

As discussed in our descriptive statistics, metropolitan areas have become more diverse, while levels of segregation have decreased. According to our cross-sectional model, overall racial and ethnic concentration does have some predictive ability on the level of segregation. In the pooled (overall) model we see that larger percentages of Blacks and Latinos in an area are associated with greater overall segregation, not consistent with our simple sketch of the diffusion model (above), but in line with the findings of Krivo and Kaufman (1999). When we look across

individual segregation pairings, we find less consistency, but the general result remains that greater fractions of Blacks and Latinos are associated with more segregation. Most specifically, larger concentrations of Blacks and Latinos are associate with appreciably (and significantly) higher Black-Latino dissimilarity.

The percentage of foreign-born in an MSA has no impact on the overall level of segregation. There is no evidence, then, that a greater concentration of immigrants in a city is associated with higher levels of (pairwise) segregation in that city. This absence of a connection between immigrant concentration and segregation level tends to hold for the split (group-specific) models as well. In these models we find that the percentage of foreign born in a metropolitan area has no effect on levels of White-Black, White-Asian, Black-Latino, Black-Asian, and Latino-Asian rates of dissimilarity. White-Latino dissimilarity is the only measure that appears to rise with the concentration of the foreign-born.

[TABLE 4 HERE]

Whereas the cross-sectional model gives us a rough multivariate snapshot of the metropolitan traits associated with higher and lower levels of segregation across the various groups, the first difference model provides a more rigorous test of the relationship. The benefit of using a first-difference model is that it removes the effect of unobserved, constant factors. For example, the patterns of migration laid by previous waves of migrants likely affect current and future waves of migrants, making it difficult to disentangle those previous trends from current choice (Mueser, 1989). In first difference-models, we regress one change, such as the change in the percentage of foreign-born, on another change, in this case change in dissimilarity. Estimates produced in a first-difference model are less likely to be biased than those resulting from a cross-

sectional model. Coefficient estimates in the first difference model also retrieve the underlying values desired in most causal specifications written in cross sectional form.

Table 4 shows the results from the first-difference model. We estimate successively more inclusive models. In all cases fixed covariates, such as metropolitan cohort and region, drop out. In the pooled models we find a strong association between overall segregation and the covariates of population, housing stock vintage, and immigrant concentration. Large cities are clearly more segregated. Cities with more housing of recent vintage (fast-growing areas) are significantly less segregated. Metropolitan areas with larger concentrations of Blacks are found to be more segregated, yet there is no parallel effect (in pooled analysis) for Latino and Asian concentration.

In our first-difference model we find that increased percentages of foreign-born increase overall dissimilarity. A ten percentage point increase in immigrant concentration predicts a 4.4 percentage point increase in segregation overall. In some broad way, then, more immigration is associated with greater segregation across the several interethnic pairings. Of particular interest is whether this relationship holds up in the six specific analysis of these same 310 metropolitan areas. When we run the first-difference models to predict individual pairings of segregation – comparable to our first pooled model in which only population and housing stock change also appear –the results are not as consistent. An increase in the percentage of foreign-born has no effect on changes in White-Black, Black-Latino, or Black-Asian dissimilarity. However, increases in the percentage of foreign-born do result in increased segregation between Whites and Latinos, Whites and Asians, and Latinos and Asians. The strongest effect is for White-Latino segregation, where the dissimilarity index is predicted to rise almost point for point with the percentage foreign born.

The size of a metropolitan area may affect how changes in immigration influence changes in segregation. For instance, smaller metropolitan areas may have such small percentages of certain ethnic or racial groups that measuring dissimilarity in these areas is problematic to begin with. For this reason, we have run our first difference models on groups of metropolitan areas, based on their size. Table 5 highlights the effect of immigration changes on dissimilarity changes on MSAs of different sizes. The table extracts the coefficients on (change in) immigrant fraction from models that also included measures of (change in) population and housing stock. The first column of Table 5 replicates the values found in table 4; subsequent columns present values for size classes of metropolitan areas.

[TABLE 5 HERE]

Increases in the foreign born increase dissimilarity among Whites and Latinos, Whites and Asians, and Latinos and Asians in the sample of all metropolitan areas. Once the sample is limited to larger MSAs, the effect of immigration on dissimilarity begins to wane. By the time the model is limited to the 61 metropolitan areas of 1 million or more residents, the immigrant concentration only affects White-Asian dissimilarity. Though still significant and positive, the coefficient has declined in magnitude and it has lost some of its significance.

Discussion

In previous studies, scholars have focused on immigration's impact on Black-White segregation. This type of dissimilarity has been the focus, as the interest has been in determining the effect of the foreign-born on native-born residential patterns. Does immigration "stir the melting pot" or further separate it? Working with data at this level of analysis, it is impossible to determine what portion of the respective racial or ethnic segregation statistic is comprised of

immigrant versus native-born. This is particularly problematic with segregation statistics that include Asians or Latinos, two groups that have dominated immigration flows in recent years. Based on what we do know about recent migration trends, we can say with some confidence that the Black-White dissimilarity statistic is predominantly a measure of how segregated two native-born groups are from one another.

Previous studies have found that immigration has no effect on White-Black residential segregation, and in some cases, even is associated with a reduction in Black-White segregation (White & Glick, 1999). Such a result lends support for the "diffusion" hypothesis. Our findings suggest that immigration is neutral with regard to White-Black segregation. Though immigration may not promote residential integration between Whites and Blacks, neither does it drive polarization.

The effect of immigration on other types of segregation is less consistent and more difficult to substantively interpret. This is particularly true in smaller MSAs where there is little racial or ethnic diversity to begin with, calling into question the value of such a comprehensive approach to segregation analysis. Perhaps in the smaller MSAs immigrants are making up a substantial portion of the population upon which the dissimilarity indices are being calculated for Asians or Latinos. Here, chain migration could especially augment segregation, as new immigrants enter these smaller metropolitan areas and settle in the same neighborhood as their countrymen. An influx of immigrants to these smaller metropolitan areas may also have a bigger impact on the shift in the fraction foreign-born, as the initial denominator is smaller. This scale effect could generate (not spuriously) an association between immigrant concentration and segregation. When examining the coefficients from the first difference model (the more reliable of the estimates), the positive and significant effect of immigration on White-Latino, White-

Asian, and Latino-Asian dissimilarity tends to disappear as the MSAs get bigger. This suggests that immigration has very little impact on most types of segregation because these largest metropolitan areas are the very locales where the majority of immigrants settle. The effect of immigration on residential segregation in the smaller MSAs is likely the result of small numbers making a big impact, due to the initial size of the area and its lack of diversity.

Conclusion

The level and pace of contemporary immigration have raised concerns about the impact of such substantial demographic change on both the host and foreign-born population. One realm in which those concerns can be viewed is that of residential and locational patterns. Just as concerns are often raised about the social and economic adaptation of immigrants, so too, concerns have been raised about the impact of the new immigration on the spatial proximity and relocation of persons within and among metropolitan areas. We investigate this issue within metropolitan areas by examining ethnic residential segregation for US metropolitan areas 1990-2000. We examine segregation statistics for 6 ethnic pairings available from complete count 1990 and 2000 US census data.

Descriptively, we observe that Black-White segregation and most other ethnic segregation has declined, even in the face of substantial growth in the foreign born population. We do find that White-Latino segregation increased over the decade. Our multivariate results from a first-difference model indicate that larger cities are more segregated for any of these six pairings. At the same time recent growth in the housing stock is associated with lower levels of segregation.

We test competing hypotheses. One the one hand immigration may further segregate ethnic groups, resulting in polarization. On the other hand, immigration may "stir the melting pot," a process of diffusion linked to greater integration. Our first-difference model indicates that the effect of immigration on segregation is modest, albeit positive, in most cases. Immigration has no impact on White-Black segregation. It is selectively significant elsewhere and the effect attenuates with metropolitan area size. While not demonstrating diffusion, neither do our findings lend much support for the polarization hypothesis. There is little in these results that suggests concern in the policy realm arising from increased immigration to the United States.

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TABLE 1: MSAs and PMSAs with Highest Percentages of Foreign Born, 1990 and 2000

MSA/PMSA	Percent Foreign-Born, Year 1990	MSA/PMSA	Percent Foreign-Born, Year 2000
Miami, FL PMSA	45.1	Miami, FL PMSA	50.9
Los Angeles-Long Beach, CA PMSA	32.7	Jersey City, NJ PMSA	38.5
Jersey City, NJ PMSA	30.6	Los Angeles-Long Beach, CA PMSA	36.2
San Francisco, CA PMSA	27.5	San Jose, CA PMSA	34.1
New York, NY PMSA	26.7	New York, NY PMSA	33.7
Laredo, TX MSA	25.0	San Francisco, CA PMSA	32.0
McAllen-Edinburg-Mission, TX MSA	24.7	Orange County, CA PMSA	29.9
El Paso, TX MSA	23.9	McAllen-Edinburg-Mission, TX MSA	29.5
Orange County, CA PMSA	23.9	Laredo, TX MSA	29.0
San Jose, CA PMSA	23.2	Salinas, CA MSA	29.0

Sources: 1990 and 2000 Censuses.

TABLE 2: Descriptive Statistics of Variables Used in OLS Regression and First-Difference Models of Dissimilarity

Variable		1990	2000
Dissimilarity			
	Overall	45.14	42.06
	White-Black	55.69	51.43
	White-Latino	36.13	38.57
	White-Asian	38.41	35.48
	Black-Latino	46.21	39.29
	Black-Asian	53.73	47.38
	Latino-Asian	40.68	40.21
MSA Population		600,172	682,724
Housing Built in Previous Decade*		5.17	17.80
Black		9.87	10.91
Latino		7.25	9.90
Asian		2.02	2.93
Foreign Born*		5.36	7.38
Region			
	South		0.37
	North		0.18
	Midwest		0.24
	West		0.21
Metropolitan Cohort			
	1900 or earlier		28.40
	1910 to1940		17.82
	1950 to 1960		16.31
	1970		6.34
	1980		3.93
	1990		6.95
	2000		3.63
	Not Yet of Age		16.60

Sources: 1990 and 2000 Censuses, D-values courtesy of the Mumford Center at SUNY-Albany.

* The statistics for the percentage of foreign-born in 1990 and the percentage of new housing built in 1990 are based on 310 MSAs. All other statistics are calculated from the 331 MSAs included in the cross-sectional model.

TABLE 3: Measures of Dissimilarity Between All Groups According to OLS Regression Models, 2000

Variable	Overall Diss.	White Black	White Latino	White Asian	Black Latino	Black Asian	Latino Asian
Population Size (log)	4.06 ***	5.61 ***	3.09 ***	1.62 **	6.36 ***	5.09 ***	2.57 ***
Region (vs. South)							
North	-1.08	-1.62	10.64 ***	-0.84	-13.68 ***	-5.68 *	4.71 *
Midwest	2.02 **	3.14 *	1.62	1.14	0.70	2.04	3.45 *
West	-6.48 ***	-8.47 ***	-1.35	-6.44 ***	-7.41 ***	-12.62 ***	-2.58
Metropolitan Cohort							
1900 or earlier	0.92	0.81	5.37 **	3.32 *	-2.39	-2.41	0.82
1910 to1940	-1.68	-0.86	3.09	1.77	-7.38 ***	-4.12	-2.55
1950 to 1960	-2.20 **	-2.50	2.72	1.00	-6.11 ***	-5.85 **	-2.49
1970	-2.15 *	-6.34 **	4.34	0.46	-1.56	-9.12 ***	-0.66
1980	-3.97 **	-5.56 *	-0.45	0.00	-7.63 **	-8.01 *	-2.17
1990	-2.06	-5.22 *	1.68	0.90	-0.91	-7.10 **	-1.72
2000	1.39	-2.80	6.00 *	2.59	2.80	-2.76	2.52
Percent of Housing Units Built in Previous Decade	-0.32 ***	-0.55 ***	-0.10	-0.06	-0.51 ***	-0.53 ***	-0.13
Racial and Ethnic Composition							
Percent Black	0.23 ***	0.29 ***	0.05	0.06	0.32 ***	0.53 ***	0.16 *
Percent Latino	0.16 ***	-0.04	0.19 **	0.04	0.17 **	0.15 *	0.43 ***
Percent Asian	-0.10	-0.41 **	-0.14	0.43 ***	-0.26	-0.14	-0.08
Pairwise Dummies (vs. White Black)							
White Latino	-12.86 ***						
White Asian	-15.96 ***						
Black Latino	-12.15 ***						
Black Asian	-4.05 ***						
Latino Asian	-11.22 ***						
Nativity Composition							
Percent Foreign Born	0.02	0.16	0.30 *	-0.05	0.06	-0.18	-0.20
Constant	3.18	-10.42	-8.38	13.45	-30.51	-6.39	5.13
R^2	44.00	62.15	46.00	30.06	53.52	55.41	31.52
Number of Observations	1986	331	331	331	331	331	331

Sources: 1990 and 2000 Censuses, D-values courtesy of the Mumford Center at SUNY-Albany.

TABLE 4: First Difference Models of Dissimilarity, 1990 and 2000

	Overall								
Variable				White Black	White Latino	White Asian	Black Latino	Black Asian	Latino Asian
Population Change (log)	5.42 *	6.65 **	6.65 ***	-2.69	4.30	9.3 *	3.14	7.56	10.89 *
Change in New Housing Built	-0.06 **	-0.06 ***	-0.06 ***	-0.04	0.09 *	-0.14 ***	-0.09 *	-0.15 ***	-0.03
Change in Percentage Foreign Born	0.43 ***	0.44 **	0.44 **	0.10	0.92 ***	0.58 ***	0.24	0.02	0.71 **
Change in Percentage Black		0.32 *	0.32 **						
Change in Percentage Latino		-0.06	-0.06						
Change in Percentage Asian		0.17	0.17						
White Latino Dummy			6.86 ***						
White Asian Dummy			1.48 ***						
Black Latino Dummy			-2.68 ***						
Black Asian Dummy			-2.12 ***						
Latino Asian Dummy			3.73 ***						
Constant	-3.80	-4.29	-5.50	-3.62	-0.87	-0.97	-6.65	-5.43	-2.89
R^2	4.76	5.23	33.45	1.95	13.35	14.75	4.6	6.54	14.63
Number of Observations	1860	1860	1860	310	310	310	310	310	310

Sources: 1990 and 2000 Censuses, D-values courtesy of the Mumford Center at SUNY-Albany.

*p<.05; **p <.01; ***p< .001

TABLE 5: Effect of Foreign Born on Dissimilarity Changes by MSA Size, First Difference Model

Pairing	All MSAs	250, 000+ Residents	500,000+ Residents	1 Million+ Residents
White Black	0.10	-0.02	-0.18	0.10
White Latino	0.92 ***	0.59 *	0.38	0.28
White Asian	0.58 ***	0.64 ***	0.56 ***	0.46 *
Black Latino	0.24	0.35	0.19	0.41
Black Asian	0.02	0.13	-0.05	0.46
Latino Asian	0.71 **	0.48 *	0.51 *	0.54
Number of Observations	310	179	102	61

Sources: 1990 and 2000 Censuses, D-values courtesy of the Mumford Center at SUNY-Albany.
*p<.05; **p <.01; ***p< .001